

# EXHIBIT E

## REDACTED

UNITED STATES DISTRICT COURT  
DISTRICT OF MASSACHUSETTS

SINGULAR COMPUTING LLC,

Civil Action No. 1:19-cv-12551-FDS

Plaintiff,

v.

GOOGLE LLC,

Defendant.

**PLAINTIFF'S RESPONSE TO DEFENDANT'S FOURTH SET OF INTERROGATORIES**

Plaintiff, Singular Computing LLC (“Singular”), responds to Defendant, Google LLC’s (“Google”), fourth set of interrogatories as follows.

**GENERAL OBJECTIONS**

1. Singular objects to the Interrogatories to the extent that it has not completed its discovery, investigation, research, and trial preparation. The following responses and objections are based on information reasonably available to Singular as of the date of this response. Singular expressly reserves the right to supplement the following responses and objections, and to change any answers therein as additional facts are ascertained, analyses are made, legal research is completed, contentions are made, or as a result **of the Court's legal determination of issues**, including without limitation, the construction of the asserted claims.

2. Singular's responses and objections are made without waiving or intending to waive, but on the contrary preserving and intending to preserve: all questions as to competency, relevancy, materiality, privilege, and admissibility as evidence for any purpose of its responses; or subject matter thereof, in any subsequent proceeding in or the trial of this or any other action; the right to object on any ground to the use of said responses and objections, or the subject matter thereof, in any subsequent proceeding in or the trial of this or any other action; and the right to

object on any ground at any time to other interrogatories, requests for production, requests for admission, or other discovery procedures involving or relating to the subject matter of the Interrogatories. Singular expressly reserves all objections as to relevance, authenticity, and/or admissibility of any information disclosed in accordance with these objections and responses. **Singular's willingness to provide information in response to the Interrogatories is not a concession** that the subject matter of the particular Interrogatory is discoverable, relevant to this action, or admissible as evidence.

3. Singular objects to the Interrogatories to the extent that they are overly broad, unduly burdensome, oppressive, and/or designed solely to harass Singular.

4. Singular objects to the Interrogatories to the extent that they seek information not in the possession, custody, or control of Singular.

5. Singular objects to the Interrogatories to the extent that they seek information not relevant to and/or not reasonably calculated to lead to the discovery of admissible evidence.

6. Singular objects to the Interrogatories to the extent that they seek information protected by the attorney-client privilege, the attorney work-product doctrine, and/or any other applicable privilege or immunity. The inadvertent disclosure of any privileged information does not signify any intent by Singular to waive any applicable privileges.

7. Singular objects to the Interrogatories to the extent that they purport to require Singular to do anything beyond that which is required by the Federal Rules of Civil Procedure, the Local Rules, and/or any other applicable law or provision.

8. Singular objects to the Interrogatories to the extent that they seek disclosure of information protected by the rights of privacy of third-party non-litigants and/or that they seek disclosure of information subject to confidentiality agreements or protective orders.

9. Singular objects to the Interrogatories to the extent that they are vague, ambiguous, and/or confusing in that they fail to describe with reasonable particularity the information sought.

10. Singular objects to the Interrogatories to the extent that they seek information already in the possession of the defendant and/or information that is readily available to the defendant. Singular further objects to the Interrogatories to the extent that they seek information that is equally available to defendant through other sources, including but not limited to publicly available information or records. Such information can be obtained by the defendant with at least the same (and, in some cases, less) burden and expense than Singular would have to undertake.

11. Nothing herein shall be construed as an admission by Singular with respect to the admissibility of any characterization contained in the Interrogatories. Singular's **willingness to** provide information in response to the Interrogatories is not a concession that the subject matter of the particular Interrogatory is discoverable, relevant to this action, or admissible as evidence.

12. Singular objects to the Interrogatories to the extent that they seek information that is the subject of expert testimony. Singular will provide such information at the time and in the manner specified by order of this Court and the Federal Rules of Civil Procedure.

13. Singular objects to the Interrogatories to the extent that they seek to define terms and/or characterize the evidence in this matter. To the extent that Singular adopts any terms used in the Interrogatories, such adoption is specifically limited to the objections and/or responses, and the disclosure made pursuant thereto. To the extent that a term is undefined, Singular will use its reasonable understanding and interpretation of such term.

14. Singular objects to defendant's **definition of the term "identify" to the extent that** defendants purport to extend the Interrogatories to cover information and documents outside the possession, custody, or control of Singular. Singular further objects to defendant's definition of

the term “identify” to the extent that they are overly broad, unduly burdensome, and call for information that is not relevant or reasonably calculated to lead to the discovery of admissible evidence.

15. Singular **objects to the definition of “you,” “your,” and “Singular” to the extent that** defendants purport to extend the Interrogatories to cover information outside the possession, custody, or control of Singular. Singular **further objects to the definition of “you,” “your,” and “Singular” to the extent that it includes any of Singular’s attorneys, and, as such, seeks information** protected by the attorney-client privilege, the attorney work-product doctrine, and/or any other applicable privilege or immunity. Finally, Singular **objects to the definition of “you,” “your,” and “Singular” to the extent that it is overly broad, unduly burdensome**, vague, and/or ambiguous.

16. Singular objects to the Interrogatories to the extent that they contain more separate and discrete interrogatories than permitted by order of this Court, Local Rules and/or the Federal Rules of Civil Procedure. To the extent Singular provides a response to the Interrogatories, it does so without waiving any objection to the number of interrogatories allowed by the Federal Rules of Civil Procedure, Local Rules and/or Orders of the Court.

17. Singular objects to the Interrogatories to the extent that they seek information the disclosure of which is prohibited by a confidentiality agreement between Singular and a third party.

The foregoing General Objections are incorporated by reference into the following specific responses, as though fully set forth therein.

**RESPONSES**

**INTERROGATORY NO. 19:**

Describe all facts related to your relationship with [REDACTED], including a description of the Research Agreement, SINGULAR-00012070, the negotiation of that agreement, and the results of the research described.

**RESPONSE:**

Singular objects to this interrogatory on the grounds that it seeks irrelevant information. Singular further objects to this interrogatory to the extent it calls for information or documents protected by any non-disclosure agreement(s) that would prevent the production or disclosure of such materials absent consent from any non-Singular party to such agreement(s) and where consent for the production has been withheld or denied by the non-Singular party.

Subject to and without waiving its objections, Singular responds as follows: Singular incorporates its response to Interrogatory No. 11 and all supplementations thereto.

**INTERROGATORY NO. 20**

Identify all production batches of the S1 chip, including without limitation prototypes, where and when they were produced, and related manufacturing costs.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as overly broad and unduly burdensome and calling for the production of information that is not relevant to any of the claims or defenses asserted in this case by any party. Singular also objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, Singular responds that [REDACTED] [REDACTED]. The [REDACTED] were functionally and architecturally identical, and were produced at the behest of [REDACTED] on

Singular's behalf. The actual cost of the fabrication borne by the fabrication facility for each batch of S1 is not known by Singular.

**INTERROGATORY NO. 21**

Identify where and when any systems with one or more S1 chips were put into use, including without limitation the [REDACTED].

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as overly broad and unduly burdensome and calling for the production of information that is not relevant to any of the claims or defenses asserted in this case by any party. Singular also objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, the S1 chips were put into use by various government agencies, including the army and Dr. Bates, including his use thereof in demonstrating same to Google.

**INTERROGATORY NO. 22**

Describe Singular's alleged conception, design, and use of a 14-bit "approximate float" data type and identify all related documents.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, Singular responds that **Singular's patents**, related applications, and prosecution histories teach such a data type and thoroughly describe its design. Subsequent presentations to Google and other entities, as produced by Singular to **Google and currently in Google's possession**, reference such a data type.

**INTERROGATORY NO. 23**

Identify all documents regarding Singular's alleged conception, design, and use of a 16 bit floating-point number format having an 8-bit exponent and 7-bit fraction.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, Singular responds that **Singular's patents, related applications, and prosecution histories teach such a data type and thoroughly describe its design. Subsequent presentations to Google and other entities, as produced by Singular to Google and currently in Google's possession, reference such a data type.**

**INTERROGATORY NO. 24**

Identify any disclosure to Google by Singular, including without limitation by Dr. Bates, of either (a) a 14-bit "approximate float" data type or (b) a 16-bit floating-point number format having an 8-bit exponent and 7-bit fraction.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, Singular responds that as understood, **Singular's patents, related applications, and prosecution histories teach such data types and thoroughly describe their design. Singular believes that Google was made aware of these patents as early as 2010-2011, and therefore Singular disclosed these data types to Google at this time. Subsequent presentations to Google and other entities, as produced by Singular to Google and currently in Google's possession, reference such data types as well. Dr. Bates also had personal**

conversations with numerous Google employees over the 2010-2017 timeframe, including Jeffrey Dean, during which the use and design of such data types may have been discussed.

**INTERROGATORY NO. 25**

Identify any valuations of Singular, its intellectual property, or the Asserted Patents, including without limitation any proposed or requested offers for sale, and describe when the valuation was performed or offer was made and by whom.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, Singular is unaware of any valuations of Singular, its intellectual property, or the Asserted Patents, other than its investments therein.

**INTERROGATORY NO. 26**

Explain why Singular contends that the program compiled from the FAC Testing Source Code is an accurate model of the “TPU’s float32 multiplication operation” (see FAC at ¶ 94), including without limitation identifying which variables in the FAC Testing Source Code, if any, correspond to the claimed “possible valid inputs” to the element in the TPU that Singular contends is “the LPHDR unit executing the first operation”; which TPU output(s), if any, correspond to the claimed “first output signal of the LPHDR unit”; and what the corresponding “result of an claimed exact mathematical calculation” would be for any such “first output signal.”.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as overly broad and unduly burdensome and calling for the production of information that is not relevant to any of the claims or defenses asserted in this case by any party. Singular also objects to this interrogatory as vague and ambiguous. This interrogatory is also objected to because it is based on a flawed premise. As for the source code, it speaks for itself.

**INTERROGATORY NO. 27**

Describe in detail each of your communications with Google from 2009 to the present, including the date, contact at Google, and the subject of the communication.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as overly broad and unduly burdensome and calling for the production of information that is not relevant to any of the claims or defenses asserted in this case by any party. Singular also objects to this interrogatory as vague and ambiguous. Singular further objects as **the requested information is equally available to Google from Google's own records and** documents produced by the parties in this case.

Subject to these objections, Singular refers to documents that have been produced in this litigation, including but not limited to:

SINGULAR-00006721-23  
SINGULAR-00006659-63  
SINGULAR-00006723-25  
SINGULAR-00006738-41  
SINGULAR-00006800-01  
SINGULAR-00006867  
SINGULAR-00006889-6916  
SINGULAR-00012519-45  
SINGULAR-00016359-60  
SINGULAR-00018125-31  
SINGULAR-00018179  
SINGULAR-00018199-226  
SINGULAR-00018435  
SINGULAR-00019809-10  
SINGULAR-00019898-90  
SINGULAR-00026891-00027685  
GOOG-SING-00018435  
GOOG-SING-0083457-68  
GOOG-SING-00026945-49  
GOOG-SING-00027194-98  
GOOG-SING-00027459  
GOOG-SING-00028281-82  
GOOG-SING-00038601-10  
GOOG-SING-0038634-40  
GOOG-SING-00208998-99  
GOOG-SING-00209010-16  
GOOG-SING-00209004-12  
GOOG-SING-00209023-28

GOOG-SING-00209015-28  
GOOG-SING-00209046-71  
GOOG-SING-00209078-82

To the extent any further communications took place, such can be explored during the deposition of Dr. Bates.

**INTERROGATORY NO. 28**

Identify any comparisons of the S1 to GPUs (Graphics Processing Units), including with respect to processing speed and power requirements.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as calling for the production of information that is not relevant to any of the claims or defenses asserted in this case by any party. Singular also objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, Singular responds that Singular is aware of no such comparisons.

**INTERROGATORY NO. 29**

Identify all members of the Singular advisory board past and present and the time periods when each member served on the advisory board.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as overly broad and unduly burdensome and calling for the production of information that is not relevant to any of the claims or defenses asserted in this case by any party. Singular also objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, Singular responds that there has never been a formal Singular advisory board. Josh Tenenbaum and Stephen Boyd agreed to be on **Singular's** advisory board if one was ever created.

**INTERROGATORY NO. 30**

Identify all venture funding received by Singular, including without limitation when the funding was received, who provided it, and what, if any, ownership stake was provided in return.

**RESPONSE:**

In addition to the General Objections, incorporated herein by reference, Singular objects to this interrogatory as overly broad and unduly burdensome and calling for the production of information that is not relevant to any of the claims or defenses asserted in this case by any party. Singular also objects to this interrogatory as vague and ambiguous.

Subject to and without waiving its objections, Singular responds that it is willing to meet and confer regarding the appropriate scope of this request, if any.

Dated: June 23, 2021

Respectfully submitted,

*/s/ Brian Seeve*

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Paul J. Hayes (BBO #227000)  
Matthew D. Vella (BBO #660171)  
Kevin Gannon (BBO #640931)  
Daniel McGonagle (BBO #690084)  
Brian M. Seeve (BBO #670455)  
PRINCE LOBEL TYE LLP  
One International Place, Suite 3700  
Boston, MA 02110  
Tel: (617) 456-8000  
Fax: (617) 456-8100  
Email: phayes@princelobel.com  
Email: mvella@princelobel.com  
Email: kgannon@princelobel.com  
Email: dmgonagle@princelobel.com  
Email: bseeve@princelobel.com

ATTORNEYS FOR THE PLAINTIFF

CERTIFICATE OF SERVICE

I certify that on June 23, 2021, I served this document on Defendant by causing a copy to be sent via electronic mail to its counsel of record.

*/s/ Brian Seeve* \_\_\_\_\_